REMARKS

In the office action, the Examiner rejected each of pending claims 1-4, 6-18 and 102-133 under 35 U.S.C. 102(a) as being anticipated by WO 99/36760 (the '760 reference), and under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,428,752 issued to Montagu (the Montagu reference). Reconsideration and allowance of the application are requested.

I. Claims 1-4 and 6-18

Independent claim 1 of the application is directed to a method of washing and drying a pin of a microarray spotting instrument. The method includes the steps of moving the pin to a given position, washing the pin while in the given position, and drying the pin without substantially moving the pin from the given position. The claim is modified to specify that the pin is washed by *impinging the fluid depositing tip* of the pin with at least one stream of wash fluid.

The '760 and Montagu references disclose spotting instruments having a pin and supply ring mechanism. As shown in Figs. 3A-3D of the Montagu reference and Figs. 9A-9D of the '760 reference, a pin 12 is surrounded by a supply ring 14. In use, the supply ring is immersed in the well of a supply plate, and fluid is retained in the ring. The tip of the pin 12d, which has a sharp rim indicated by reference number 12f, is moved through the ring to pick up some of the fluid in the ring to be deposited.

A cleaning station for cleaning the pin and supply ring mechanism is shown in Fig. 7 of Montagu (reproduced below for reference) and Fig. 9G of the '760 reference. As shown, an annular nozzle 200 transmits fluid for washing the pin 12 and the supply ring 14.

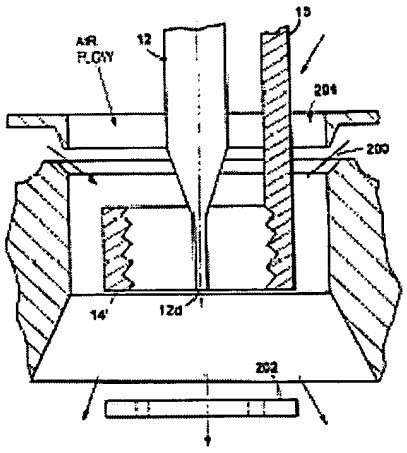

FIG. 7

The Examiner states that claim 1 is anticipated because the references teach that fluid is impinged against deposit pins. In particular, the Examiner states that column 4, lines 32-44 (and more particularly lines 37-42) of the Montagu reference teaches "a cleaning or drying station comprising a circular nozzle is constructed to discharge a conical flow of fluid ... high pressured liquid ... against (impinging) a deposit device (being a pin or pin-like structure)."

The Examiner refers to Webster's 11 New Riverside University Dictionary for defining the term "impinge" to mean (1) push against, (2) to collide or strike. The Examiner concludes that "it is inherent that '758[1] impinges a cleaning fluid on the tip of the pin because in the pin itself is the depositing device (col. 9, lines 16-50)." This, however, is not the case. Montagu does disclose directing fluid against a deposit device as indicated by the Examiner. However, the reference does not anticipate claim 1, which specifies washing the pin by impinging the fluid depositing tip of the pin with at least one stream of wash fluid. Montagu, by contrast, only discloses directing fluid along the length of the pin and ring device toward the tip of the pin; it does not disclose or in any way suggest directly impinging wash fluid against the fluid depositing tip of the device, as provided in Applicants' independent claim 1. For example, the '752

[1] This appears to be an error. The Examiner is presumably referring to the '752 patent, i.e., the Montagu reference.

reference states in col. 2, lines 34-39, that there is "a cleaning station [that] comprises a fluid jet arranged to blow down along the length of the deposit device toward its drop depositing end." Thus, rather than impinging the fluid depositing tip of the pin as specified in Applicants' independent claim 1, the cited references only disclose flowing fluid along the length of the device in a direction towards the tip. As noted above, Montagu identifies the tip of its pin 12 by reference numeral 12D and indicates that tip has "a sharp rim 12F." (col. 9, lines 33-36). There is simply no impingement, i.e., striking, of this tip of the pin by wash fluid in Montagu.

Furthermore, Montagu does not even suggest impinging the pin tip with wash fluid. It appears that this is not possible in the wash station of Montagu because the presence of the supply ring as shown in the figure reproduced above would prevent any impingement of the pin tip with fluid from the nozzle. In particular, the location of the supply ring 14' relative to the nozzle 200 and the pin tip 12d would apparently block fluid from the nozzle 200 from impinging, i.e., directly striking, the fluid depositing tip of the pin 12d. The Montagu wash station is designed to wash both the pin and the supply ring, and fluid from the nozzle would apparently flow through the supply ring and flow down the length of the pin toward the pin tip 12d. Fluid from the nozzle accordingly cannot simply bypass the ring and directly impinge the pin tip.

Because Montagu does not illustrate Applicants' claimed "washing ... by impinging a *fluid depositing tip* of said pin," Applicants traverse the Examiner's rejection of independent claim 1 and consider independent claim 1 to be allowable. Because dependent claims 2-4 and 6-18 depend from allowable independent claim 1, Applicants thus traverse the Examiner's rejections of the same and consider such dependent claims to be allowable for depending from an allowable base claim. Applicants' failure to respond to claim rejections of claims depending from an allowable base claim should not be construed as an acquiescence to such rejections, but rather an understanding by Applicants that such rejections are moot based on the dependence from an allowable base claim.

II. Claims 102-117

Independent claim 102 is directed to a method for washing and drying a pin of a microarray spotting instrument. The method features drying the pin by flowing air past the pin with the air being of a lower humidity than air in an enclosure containing the spotting instrument. The air having the lower humidity is introduced into the enclosure from outside the enclosure. As described in the specification, e.g., on page 19, the environment inside the microarray spotter enclosure generally has a controlled humidity. The vacuum drying process is made quicker and more effective by using air for drying that is introduced into the enclosure and that is of lower humidity than air within the enclosure. The cited Montagu and '760 references only teach that air used for drying pins can be heated. There is no teaching or suggestion that the air used for drying be of a lower humidity and be introduced into an enclosure containing the spotting instrument.

The Examiner states in the office action that "column 10, lines 32-34 teach that an air current from the nozzle, supplemented by induced air flow 204, can dry both pin and ring, in which case the air streams may be heated. The air being introduced into the chamber for drying is inherently dryer than the air around the tips of the dispensing nozzle because when heated the water on the nozzle is evaporated into the surrounding air making the air around the nozzle have more humidity than the incoming air." Even assuming this is correct, Montagu does not anticipate the claim because Montagu does not disclose or suggest use of air for drying the pin that is of lower humidity than air in an enclosure containing the spotting instrument, with the air having lower humidity being introduced into the enclosure from outside the enclosure. The office action offers no explanation as to how the cited references disclose incoming air being introduced into an enclosure containing the spotting instrument. Montague discloses use of an enclosure around the arrayer as shown in Fig. 6 of the reference, but such an arrayer is designed to provide a controlled spotting environment to avoid contamination. (col. 15,

lines 22-31). Accordingly, not only does the reference not disclose introducing air for pins from outside the enclosure, but teaches away from it.

Because Montague teaches away from Applicants' independent claim 102 that includes "drying said pin ... by flowing air past said pin, said air being of *lower humidity* than air in an enclosure containing the spotting instrument, said air having lower humidity *being introduced into said enclosure from outside said enclosure*," Applicants traverse the Examiner's rejection of independent claim 102 and consider independent claim 102 to be allowable. Because claims 103-117 depend on allowable independent claim 102, Applicants also traverse the Examiner's rejections of claims 103-117 and Applicants consider such dependent claims to also be allowable.

III. Claims 118-133

Independent claim 118 is directed to a method of washing and drying a pin of a microarray spotting instrument. The method includes the steps of washing the pin with a wash fluid while applying a vacuum to remove wash fluid previously applied to said pin. The step of drying includes applying a vacuum to draw air past the pin. The claimed method is neither disclosed, nor suggested by the cited references. The Examiner is apparently taking the position that these steps are disclosed by use of a vacuum pump disclosed in the references (page 44, lines 1-18 of the '730 reference and col. 10, lines 18-20 of the Montagu patent). However, the references only disclose that a trap is provided for collecting fluid from the nozzle, and that "the trap may be associated with a vacuum pump." Thus, the references teach that fluid is collected in the trap, and presumably can thereafter be removed from the trap using the vacuum pump. The references do not disclose or suggest the particular claimed step of drying ... by applying a vacuum to draw air past the pin, as claimed in Applicants' independent claim 118. The cited '760 and Montagu references, by contrast, only teach discharging compressed air from the nozzle for drying the pin. The Examiner concedes in the office action that Montagu only teaches that "the purpose of the vacuum pump is to create a vacuum so that when a pin is washed the vacuum removes the wash fluid

previously applied to the pin. Drying the pin is accomplished by an air current from the nozzle, supplemented by induced air flow 2% (col. 10, lines 1-34)." The office action therefore offers no explanation of how Applicants' claimed vacuum is used to dry the pin.

Because Montagu fails to show Applicants' independent claim 118 feature of "drying ... by applying a *vacuum* to draw air past the pin", Applicants traverse the Examiner's rejection of independent claim 118 and consider independent claim 118 to be allowable. The Examiner's rejections of dependent claims 119-132 are thus also traversed, as such claims are allowable for depending from allowable independent claim 118.

Applicants consider the present Response to be fully responsive to the Office Action. Claims 1-4, 6-18, and 102-133 are pending in the present application. As each of the claims is now believed to be condition for allowance, issuance of a notice of allowance is requested.

Respectfully submitted,

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